Assume now two types of errors:

One error that forces the OGFSM into the error state, type 1, and another error that just causes the operation monitoring system to record the signature of the OGFSM state in which the error occurred, type 2. This leads to 197 possible sequences through the OGFSM as shown in the table of Fig. 7.

If we choose the 4 bit OGFSM state encoding shown in Fig. 7 and divide the state value by using a MISR with a polynomial $1+x^3+x^{10}$, the 197 unambiguous signatures~~, listed in the table of Fig. 8 are obtained~~.

From the foregoing description, a system in which the method of the present invention is implemented has the following advantages:

The whole system or subsystem can be traced. The analyzing view is not limited anymore to chip boundaries.

The whole course of an operation is traced, which means that a monitoring of the control logic instead of monitoring the data flow is possible.

For concurrent operations, the timing behavior can be traced, e.g. for analysis of overtakes, hangs, etc.

The operation graph is specified as a finite state machine with the possibility of real time error checking.

Only one trace array is needed, multiple arrays with redundant data are not required. Thus, the amount of data can be kept to a minimum.

The unique operation ID allows a trace of the course of a computer system operation even over chip boundaries and finally, the amount of data to be stored in a trace array is